

REMARKS

The status of the application is as follows.

Original Claims 1-19 were presented for prosecution.

Claim 7 has been previously amended.

Claims 1-19, with Claim 7 as previously amended, are pending in this application.

The Examiner rejected Claims 1, 2 and 7 under 35 U.S.C. § 103(a) as being allegedly unpatentable over German Patent No. 101 54 194 A1 to Vogelsang *et al.* ("Vogelsang").

The Examiner rejected Claims 3-5, 13, 14 and 16 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang as applied to Claim 1, in light of U.S. Patent No. 4,777,268 to Randle ("Randle"), and further in view of U.S. Patent No. 6,419,671 to Lemberg ("Lemberg").

The Examiner rejected Claim 15 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Randle and Lemberg, as applied to Claim 13, and further in view of U.S. Patent No. 5,757,462 to Nanjo ("Nanjo").

The Examiner rejected Claims 6, 8 and 9 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Nanjo.

The Examiner rejected Claims 10, 11 and 12 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Nanjo as applied to Claim 8, and further in view of Lemberg and Randle.

The Examiner rejected Claims 17 and 18 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Randle in view of Lemberg.

The Examiner rejected Claim 19 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Randle in view of Lemberg, as applied to Claim 17, and further in view of Vogelsang.

Applicant respectfully traverses the Examiner's 35 U.S.C. § 103(a) rejections and requests reconsideration in light of the remarks that follow.

35 U.S.C. § 103(a)

The Examiner rejected Claims 1, 2 and 7 under 35 U.S.C. § 103(a) as being allegedly unpatentable over German Patent No. 101 54 194 A1 to Vogelsang *et al.* ("Vogelsang") with respect to which the Examiner referred to U.S. Patent Application Publication No. 2005/0041206 A1, as a sufficient English language translation of Vogelsang.

Applicant respectfully traverses the Examiner's rejection of Claims 1, 2 and 7 because Vogelsang does not teach or suggest each and every feature of Applicant's Claim 1, as explained, *infra*.

All of Applicant's Claimed Features and Limitations and have *not* been Taught or Suggested by Vogelsang

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. MPEP 2143.03

Applicant respectfully submits that Vogelsang does not teach or suggest, *inter alia*:

1. A *half-silvered mirror*

lying in a [mirror] plane that forms an angle of about 45 degrees with ...

[an] axis of projection and ...

[a] visual axis of ... [an] eye,”

as in Applicant’s Claims 1, 2 and 7 (emphasis supplied); and.

2. an *axis of projection*

that is substantially *perpendicular* to

a *visual axis* of ... [an] eye,” as in Applicant’s Claims 1, 2 and 7 (emphasis added).

Half-Silvered Mirror disposed in a Mirror Plane whose Orientation is Claimed

While acknowledging that “Vogelsang ... does not expressly disclose a half-silvered mirror,” as in Applicant’s Claim 1 (Office Action, Page 3), the Examiner supports his rejection of Claims 1, 2 and 7 as allegedly unpatentable over Vogelsang, with the assertion that “half-silvered mirror beam splitters are common expedients in the art for combining beam paths and as such [it] would have been obvious to one of ordinary skill in the art to use [half-silvered mirror beam splitters] to *combine beam paths* in the device of Vogelsang.” Office Action, Page 3 (emphasis supplied.)

This assertion presumes that applicant’s invention is a mere extrapolation of Vogelsang in which beam paths are somehow combined, and ignores the claimed geometric placement of the half-silvered mirror - - *not* to combine beam paths - - but to project an accommodative target onto an eye. Applicant’s specification states that:

“The orientation of the visual axis 219 of eye 200 may be maintained during imaging of dynamic accommodation by instructing an examinee to maintain his or her gaze at adjustable accommodative target 503 reflected onto visual axis 219 by half-silvered mirror 506 disposed in mirror plane 507. Application, Page 22, 3rd Full Paragraph.

Applicant’s Claims 1, 2 and 7 state that a half-silvered mirror lie[s] in a plane that forms an angle of about 45 degrees with ... [an] axis of projection and ... [a] visual axis of ... [an] eye.”

Therefore, the Examiner’s contention that the half-silvered mirror feature, as claimed in Applicant’s Claims 1, 2 and 7, would have been obvious to one of ordinary skill in the art “to combine beam paths in the device of Vogelsang” overlooks the specified function and claimed geometric orientation of the half-silvered mirror in the present application.

Moreover, nowhere does the Examiner provide any evidentiary support, as required by MPEP 2144.03A, that “half-silvered mirror beam splitters are common expedients in the art for combining beam paths.” MPEP 2144.03A (“It is never appropriate to rely solely on “common knowledge” in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.) Even if, arguendo, the Examiner’s conclusion regarding half silvered mirrors as common expedients for combining beam paths, was properly supported by evidence, the function and claimed orientation of the half-silvered mirror in the present application is not to combine beam paths, but to project an accommodative image onto an eye.

Axis of Projection Perpendicular to Visual Axis

Applicant further submits that nowhere does Vogelsang teach or suggest

“[a]n ... accommodative stimulation device having an axis of projection that is substantially *perpendicular* to a visual axis of ... [an] eye,” as in applicant’s Claims 1, 2 and 7.

Applicant’s

“visual axis”

may be compared with Vogelsang’s

“optical axis;” and,

Applicant’s

“axis of projection”

may be compared with Vogelsang’s disclosure of a

“travel path.”

In Vogelsang, “[a] first iris 10 and a second iris 11, together with the fixation at a fixation object 12, define the optical axis.” Vogelsang, Paragraph 35.

Comparing the quoted sentence to FIGS. 2 and 3, in which its reference numerals appear, it is clear that Vogelsang’s definition of the “optical axis” is limited to eye that is *not* being measured.

Vogelsang further states that “[v]arying accommodation states may be stimulated by moving the fixation object [12] along a travel path 13, or alternatively, for example, by moving third lens 8. The adaptation [of accommodation] may be influenced through adjustment of the

illumination of fixation object 12 by a light source 14.” Vogelsang, Paragraph 35. These sentences make clear that travel path 13 is coincident with the “optical axis” of the eye that is not being measured, because, for example, neither fixation object 12 nor third lens 8 can physically be moved other than along a straight line segment bounded by light source 14 and first iris 10.

Consequently, it is clear that Vogelsang’s “travel path” is a line segment in front of the eye that is not being measured, which is also:

- *coincident with* the “optical axis” of the eye that is *not* being measured; and,
- *parallel* to the visual axis of an eye that is being measured.

But in no case does Vogelsang teach or suggest a “travel path” that is “substantially perpendicular to the visual axis of the eye”, as in Applicant’s Claims 1, 2 and 7.

Applicant respectfully submits that the limitations on the “travel path” in relation to the “optical axis” taught in Vogelsang constrain its invention to a geometry that is entirely different from that of the present application.

The Examiner also rejected applicant’s Claim 2 on the teaching of Vogelsang, asserting that:

“Vogelsang does not expressly disclose the first and second accommodative states being selectable from the entire range of accommodation of the eye. However, it is *inherent* to the dynamic measurement of the accommodation of the eye that the initial and final accommodative states through which the eye adjusts focus during measurement would *necessarily* fall within the range of possible accommodation for the eye.”

Applicant respectfully traverses the Examiner's rejection of Claim 2 for two reasons.

Initially, Applicant submits that "first and second states of accommodation that are selectable from a range of accommodation "defined by and inclusive of a state of total disaccommodation and a state of accommodation corresponding to the accommodative amplitude of said eye," as claimed in Claim 2, do *not necessarily* fall within the range of possible accommodation for the eye. For example, an eye may not, of its own accord, achieve a state of total disaccommodation.

Contrary to the Examiner's assertion that, "Badal optometers, which are known in the art, are desirably designed to effect accommodative changes in the eye through the entire possible range of accommodation of the eye's lens," a state of total disaccommodation may not be attainable with the manipulation of a Badal optometer. Indeed, a state of total disaccommodation may only be attainable through the instillation of a medicinal cycloplegic agent. It is to allow for such a contingency that Applicant's range of accommodation is claimed using the defining language appearing in applicant's Claim 2.

Vogelsang's failure to expressly disclose first and second accommodative states as being selectable from the entire range of accommodation of the eye is not overcome by an inherency argument because a state of total disaccommodation is *not* necessarily inherent in the entire range of accommodation of an eye, but may have to be medically induced.

Based on the preceding arguments, Applicant respectfully maintains that Claims 1, 2 and 7 are not unpatentable over Vogelsang, and that Claims 1, 2 and 7 are in condition for allowance.

Applicant traverses the Examiner's rejections of Claims 4-16 and 19 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of the Examiner's cited secondary references to Randle, Lemberg and Nanjo, using the same arguments as used to overcome the Examiner's rejections of Claims 1, 2 and 7, *infra*, because Vogelsang in combination with the cited secondary references, as directed to each of these claims, still do not teach or suggest, *inter alia*:

- a half-silvered mirror that projects an accommodative target at an eye and is disposed in plane that is at 45 degrees with both the visual axis of the eye and an axis of projection; and,
- an axis of projection that is substantially perpendicular to the visual axis of the measured eye.

Additionally, Claims 3-6 depend from Claim 1. Applicant has shown, *supra.*, that Claim 1 is not unpatentable over Vogelsang, because Vogelsang does not teach or suggest each and every feature of Claim 1. Accordingly, Claim 1 is not unpatentable under 35 U.S.C. §103(a) and is in condition for allowance. Since Claims 3-6 depend from Claim 1, Applicant respectfully contends that Claims 3-6 are likewise not unpatentable under 35 U.S.C. §103(a) and are likewise in condition for allowance.

Vogelsang in view of Randle and Lemberg

The Examiner also rejected Claims 3-5, 13, 14 and 16 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in light of Randle, and further in view of Lemberg.

When applying 35 U.S.C. 103(a), the following tenets of patent law must be adhered to:

- The claimed invention must be considered as a whole;
- The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. MPEP 2141.

Applicant respectfully submits that the Examiner's rejection of Claims 3-5, 13, 14 and 16 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in light of Randle, and further in view of Lemberg is improper because the Examiner

- has not considered the claimed invention as a whole; and
- has not shown a motivation to modify the primary reference, Vogelsang, with either Randle or Lemberg.

Consequently, the combination of Vogelsang, with Randle and Lemberg is improper.

Vogelsang in View of Randle

The Examiner acknowledges that Vogelsang does not expressly disclose two additional inventive elements of claimed in the present invention:

- 1) a set of exchangeable target-image-forming masks within the projection apparatus (i.e., within the accommodative stimulation unit **10** of Vogelsang); or,
- 2) a computer-controlled motorized carriage for moving the projection systems along a linear scale.

The Examiner states that “[a]t the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the accommodation-stimulating device of Randle, including the *exchangeable target-image-forming masks*, computer-controlled motorized

stage and linear scale, into the device of Vogelsang to serve as the accommodative stimulation unit therein, as the device of Randle serves the same express purpose of the accommodative stimulation unit, i.e., to cause the eye to adapt through a range of accommodation.” Office Action, Page 4 (emphasis supplied)

However, nowhere does Randle teach or suggest “at least one member of a set of exchangeable target-image-forming masks” structurally oriented along an “axis of projection,” as in Applicant’s Claim 3. Rather, Randle only teaches “that different apertures ... can be interchanged in the *optical path*” Accordingly, Randle does not teach the structural placement of a “set of exchangeable target-image-forming masks” along an “axis of projection” as in Applicant’s Claim 3.

Moreover, Applicant respectfully contends that the “apertures” taught by Randle cannot be so broadly interpreted as to subsume a “set of exchangeable target-image-forming masks,” as in Applicant’s Claim 3. Nowhere does Randle teach or suggest that “at least one member of a set of exchangeable target-image-forming masks” ... “forming said adjustable accommodative target” [Application: Page 27; Claim3; Lines 5-10] to drive a subject’s accommodation through “at least one reversible accommodative transition from any first state of accommodation to any second state of accommodation,” as in Applicant’s Claim 1 [Application: Page 26; Claim 1; Lines 4-6 (emphasis supplied)], from which Claim 3 depends.

On the contrary, the three apertures taught by Randle:

- a fixed “wide open” aperture 42, [Randle: column 5; line 13];
- a “pinhole” aperture 48 [Randle: column 5; lines 19-20]; and,

- a “Scheiner” aperture 52 having two orifices [Randle: column 5; lines 21-22] collimate light so that it travels forward in a plane wave without convergence or divergence until it impinges upon a lens 64 [Randle: column 6; lines 27-37]. Additionally, Applicant submits there is no motivation, express or implied, in Vogelsang to incorporate the accommodation-stimulating device of Randle, because Vogelsang teaches the projection of images to either a stimulated or non-stimulated eye and the measurement of accommodation in either a stimulated or non-stimulated eye, while Randle teaches away from projecting an image to the non-stimulated eye and teaches away from measuring accommodation in the non-stimulated eye. (Compare Vogelsang, Paragraph 19 with Randle FIG. 1). “The invention [of Randle] is an apparatus for training of the human visual accommodation system. Specifically, the apparatus is useful for training a person to volitionally control his focus to his far point (normally infinity) from a position of myopia due to functional causes.” Randle, Abstract

Vogelsang in View of Lemberg

The Examiner acknowledges that Vogelsang does not expressly disclose a system of adjustable lenses for correcting a refractive error of the eye, but notes that Lemberg teaches a fixation target optical path 238 with adjustable lens elements 240 disposed therein for purposes of refractive correction such that the fixation target is clearly viewed by the subject (col. 12, lines 1-21). Based on this teaching, the Examiner states that “[a]djustable lenses as claimed would be obvious to an artisan of ordinary skill as a common expedient to include in *any* ophthalmic instrument wherein a fixation target is projected to the eye and meant to be viewed in focus by the eye.”

However, Applicants respectfully submit that, with Vogelsang in hand, one skilled in the art would not look to the device of Lemberg, because Lemberg's device does have accommodation measurement components as do the devices of Vogelsang (and Randle). Lemberg teaches "laser eye surgery devices, systems, and methods which measure the refractive error in the eye before, during and/or after vision correction surgery." Lemberg, Abstract.

In determining the differences between the prior art and the Claims, the question under 35 U.S.C. 103(a) is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. Nowhere does Lemberg teach or suggest measurement of accommodation as in Vogelsang. Applicant submits there is no motivation, express or implied, in Vogelsang to incorporate the adjustable lens elements of Lemberg, because Vogelsang teaches the stimulation of accommodation and the measurement of wavefront aberrations in an eye, while Lemberg teaches away from the stimulation of accommodation and the measurement of wavefront aberrations in an eye. (Compare Vogelsang, Paragraph 19 with Lemberg, Abstract: "The invention provides laser eye surgery devices, systems, and methods which measure the refractive error in the eye before, during, and/or after vision correction surgery.")

With respect to Claim 5, the Examiner acknowledges that Vogelsang in view of Randle and Lemberg does not expressly teach that the computer-controlled motorized carriage is moveable within a period of time substantially less than a minimum response time for full accommodation. However, the Examiner advised that Vogelsang does teach the dynamic imaging of the eye because "[t]he optical action during stimulation may be modulated either

abruptly or continuously" (Vogelsang, Paragraph 45).

On the basis of this sentence fragment, the Examiner asserts that "[o]ne of ordinary skill in the art ... would understand that for continuous dynamic imaging of the accommodative function of the eye, the stimulus must be operable to change the focus of the eye faster than the eye can achieve a full, fixed accommodation at a singular focal point;" and, the Examiner "submits that the device of Vogelsang, though not explicitly stated, is in fact capable of this motion and/or one of ordinary skill in the art would find it obvious to achieve said motion. Office Action, Page 5.

Initially, the complete sentence to which the Examiner makes reference states:

"The *optical action* during stimulation may be *modulated* either abruptly or continuously, which is achievable, for example, by changing the *distance, luminance* etc., of the fixation object, and/or by mounting *phase plates*." (Vogelsang, Paragraph 45; emphasis supplied).

Nowhere does Vogelsang define what is meant by either *optical action* or what is meant by *modulated*. However, the balance of the quoted sentence suggests that *modulated* may refer to either

- changing a *distance* or
- changing a *luminance* or
- mounting *phase plates*.

There is nothing in this teaching to suggest or infer "a computer-controlled motorized carriage [that] is moveable within a period of time substantially less than a minimum response time for

full accommodation” as in Applicant’s Claim 5. Other than a nonspecific reference to changing a distance, Vogelsang teaches away from Applicant’s Claim 5, by its teaching of changing a luminance or mounting phase plates to modulate optical action.

Accordingly, the Examiner has not presented a convincing line of reasoning as to why one skilled in the art would have found the claimed invention to have been obvious in light of the teachings of this reference, MPEP § 2142, and the rejection of Claim 5 should be withdrawn

Vogelsang in view of Randle, Lemberg and Nanjo

The Examiner rejected Claim 15 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Randle and Lemberg, as applied to Claim 13, and further in view of Nanjo.

When applying 35 U.S.C. 103(a), the following tenets of patent law must be adhered to:

- The claimed invention must be considered as a whole;
- The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. MPEP 2141.

Applicant respectfully submits that the Examiner’s rejection of Claim 15 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Randle and Lemberg, as applied to Claim 13, and further in view of Nanjo is improper because the Examiner:

- has not considered the claimed invention as a whole; and
- has not shown a motivation to modify the primary reference, Vogelsang, with

Randle, Lemberg and Nanjo.

Consequently, the combination of Vogelsang, with Randle, Lemberg and Nanjo is improper.

The Examiner acknowledges that the combination of Vogelsang in view of Randle and Lemberg does not expressly teach dynamically imaging the eye with a Scheimpflug videography device during accommodative stimulation. Office Action, Page 6. However, the Examiner states that “[a]t the time of the invention, it would have been obvious to one of ordinary skill in the art, when viewing the disclosures of Vogelsang and Nanjo, to use a Scheimpflug imaging device as a means for acquiring image information during dynamic accommodative stimulation in place of the wavefront aberrometer expressly disclosed by Vogelsang, since one of ordinary skill in the art would be apprised that Scheimpflug imaging is a known expedient in the art for imaging the anterior chamber of the eye, the area within the eye where the crystalline lens (the element which effects accommodative change) is disposed, and since Vogelsang expressly discloses acquiring dynamic measurements of the eye through accommodative stimulation.” Office Action, Page 6.

Applicant respectfully disagrees that one skilled in the art would look to Nanjo to modify Vogelsang. Initially, the predicate prior art for looking to Nanjo is not Vogelsang standing alone, but Vogelsang in combination with Randle and Lemberg, which combination has been shown to be improper, *supra*. Secondly, the Scheimpflug principle is used in Nanjo with cameras operating in the visible portion of the spectrum (See Nanjo, Abstract: Summarizing the device of Nanjo as “an ophthalmic apparatus for photographing a section of

an anterior part of an eye . . .”); whereas, Vogelsang uses an aberrometer to measure accommodation.

Applicant submits that the Examiner’s combination of Vogelsang in view of Randle and Lemberg as applied to Claim 13, and further in view of Nanjo, is improper because Vogelsang teaches use of an aberrometer to measure accommodation and Nanjo teaches away from the use of an aberrometer to measure accommodation, instead teaching *static* photography of the eye’s anterior section.

It is improper to make a piecemeal assemblage of inventive elements from prior art references that do not suggest the desirability of making a combination, in order to support a rejection that does not consider Applicant’s invention as a whole. Accordingly, the Examiner should withdraw his rejections of Claim 15 under 35 U.S.C. § 103(a).

Vogelsang in View Nanjo

The Examiner rejected Claims 6, 8 and 9 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Nanjo.

When applying 35 U.S.C. 103(a), the following tenets of patent law must be adhered to:

- The claimed invention must be considered as a whole;
- The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. MPEP 2141.

Applicant respectfully submits that the Examiner’s rejection of Claims 6, 8 and 9 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Nanjo is

improper because the Examiner:

- has not considered the claimed invention as a whole; and
- has not shown a motivation to modify the primary reference Vogelsang with Nanjo.

Consequently, the combination of Vogelsang, with Nanjo is improper.

The Examiner acknowledges that Vogelsang “does not expressly disclose dynamically imaging the eye with a Scheimpflug videography device during accommodative stimulation” (Office Action, Page 7); but, states that “[i]t would have been obvious ... when viewing the disclosures of Vogelsang and Nanjo, to use a Scheimpflug imaging device as a means for acquiring image information during dynamic accommodative stimulation in place of the wavefront aberrometer expressly disclosed by Vogelsang.”

Initially, the kind of imaging information acquired by a Scheimpflug imaging device is *not* the same as the kind of imaging information acquired by an aberrometer. Again, the Scheimpflug principle is used Nanjo with cameras operating in the visible portion of the spectrum that capture *static* images of the anterior segment (See Nanjo, Abstract: Summarizing the device of Nanjo as “an ophthalmic apparatus for photographing a section of an anterior part of an eye . . .”); whereas, Vogelsang uses an aberrometer to measure accommodation based on wavefront aberrations.

Consequently one skilled in the art and having an interest in acquiring image information during dynamic accommodative stimulation would not be motivated to look to Nanjo on the basis of the teaching of Vogelsang.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the *desirability* of the combination. MPEP § 2143.01. Without the presence of “desirability” or “motivation” to combine, any invention could be rendered obvious by “cutting and pasting” features taught in any combination of prior art references to emulate or reproduce the invention. Where, as here, neither applicant’s invention nor the prior art references have been considered as a whole, and the desirability of combining references has not been made out, the obviousness rejection must be withdrawn.

Accordingly, the Examiner should withdraw his rejections of Claims 6, 8 and 9 under 35 U.S.C. § 103(a).

The Examiner rejected Claims 10, 11 and 12 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Vogelsang in view of Nanjo, as applied to Claim 8, and further in view of Lemberg and Randle.

Inasmuch as the Examiner referred to his arguments for rejecting Claims 3,4,13, and 14 as the grounds for rejecting Claims 10, 11 and 12, Applicant respectfully refers the Examiner to the traverse of the rejections directed to Claims 3,4,13, and 14, *supra*.

\Briefly, contrary to the Examiner’s conclusions, the teachings of Randle and Lemberg do *not* “obviate” the limitations of

- a set of exchangeable target-image-forming masks within the projection apparatus,
- a computer-controlled motorized carriage for moving the projection systems along a linear scale; or,

- a system of adjustable lenses for correcting a refractive error of the eye,

in the combination of Vogelsang and Nanjo

Nowhere does Randle teach or suggest “at least one member of a set of exchangeable target-image-forming masks” structurally oriented along an “axis of projection,” as in Applicant’s Claim 10. The “apertures” taught by Randle cannot be so broadly interpreted as to subsume a “set of exchangeable target-image-forming masks,” as in Applicant’s Claim 10.

Nowhere does Randle teach or suggest that “at least one member of a set of exchangeable target-image-forming masks” ... “forming said adjustable accommodative target,” [as in Applicant’s Claim 8, from which Applicant’s Claim 10 depends] to drive a subject’s accommodation through “at least one reversible accommodative transition from any first state of accommodation to any second state of accommodation,” as in Applicant’s Claim 18, from which Applicant’s Claim 10 depends.

While Randle teaches a computer-controlled motorized carriage for moving the projection systems along a linear scale, Applicant has shown, *supra.*, that there is no motivation, express or implied, in Vogelsang to incorporate the accommodation-stimulating device of Randle.

Lemberg teaches a fixation target optical path 238 with adjustable lens elements 240 disposed therein for purposes of refractive correction such that the fixation target is clearly viewed by the subject (col. 12, lines 1-21). However, Applicant respectfully submit that, with Vogelsang in hand, one skilled in the art would not look to the device of Lemberg, because Lemberg’s device does not have accommodation measurement components as do the devices of

Vogelsang (and Randle). Lemberg discloses “laser eye surgery devices, systems, and methods which measure the refractive error in the eye before, during and/or after vision correction surgery.” Lemberg, Abstract.

Nowhere does Lemberg teach or suggest measurement of accommodation.

Applicant submits there is no motivation, express or implied, in Vogelsang to incorporate the adjustable lens elements of Lemberg, because Vogelsang teaches the stimulation of accommodation and the measurement of wavefront aberrations in an eye, while Lemberg teaches away from the stimulation of accommodation and the measurement of wavefront aberrations in an eye. (Compare Vogelsang, Paragraph 19 with Lemberg, Abstract: “The invention provides laser eye surgery devices, systems, and methods which measure the refractive error in the eye before, during, and/or after vision correction surgery.”)

Additionally, Applicant submits there is no motivation, express or implied, in Vogelsang to incorporate the accommodation-stimulating device of Randle, because Vogelsang teaches the projection of images to either a stimulated or non-stimulated eye and the measurement of accommodation in either a stimulated or non-stimulated eye, while Randle teaches away from projecting an image to the non-stimulated eye and teaches away from measuring accommodation in the non-stimulated eye. (Compare Vogelsang, Paragraph 19 with Randle FIG. 1).

Accordingly, the Examiner should withdraw his rejections of Claims 10, 11 and 12 under 35 U.S.C. § 103(a).

Randle in View of Lemberg

The Examiner rejected Claims 17 and 18 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Randle in view of Lemberg.

The Examiner states that Randle discloses:

- an accommodation tester that is effective in stimulating the accommodation of the eye by projecting a visual target through Badal optics;
- illuminated target projection optics disposed on a translatable stage that can be driven by a computer-controlled motor and which has a linear diopter scale;
- apertures that are interchangeable in the optical path.

Office Action. Pages 8-9

However, the Examiner notes that Randle does not expressly disclose a system of adjustable lenses for correcting a refractive error of the eye. Office Action, Pages 8-9

The Examiner seeks to fill the nondisclosure of Randle with Lemberg, stating that: Lemberg teaches:

- a diagnostic/surgical system for ophthalmology that includes a fixation target path;
- a fixation target optical path 238 with adjustable lens elements 240 disposed therein for purposes of refractive correction such that the fixation target is clearly viewed by the subject.

Applicant respectfully submits that the combination of Randle and Lemberg do *not* teach the *whole invention* claimed in Applicants Claims 17 and 18. In particular, the combination of Randle and Lemberg do not teach, *inter alia*, “[a]n accommodative stimulation

device comprising,” *inter alia*:

- a half-silvered mirror that projects an accommodative target at an eye and is disposed in plane that is at 45 degrees with both the visual axis of the eye and an axis of projection; and,
- an axis of projection that is substantially perpendicular to the visual axis of the eye.

The bulleted elements follow the word “comprising” in Applicant’s Claim 17 and are unequivocally included in the device that is claimed in Applicant’s Claims 17 and 18, as features and/or limitation that are *not* taught by Randle, Lemberg, or their combination. Accordingly, the Examiner has not considered the claimed invention as a whole, as required by MPEP 2141, and the rejections of Applicant’s Claims 17 and 18 should be withdrawn.

The Examiner rejected Claim 19 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Randle in view of Lemberg, as applied to Claim 17, and further in view of Vogelsang.

With respect to Claim 19, the Examiner acknowledges that Vogelsang in view of Randle and Lemberg does not expressly teach that the computer-controlled motorized carriage is moveable within a period of time substantially less than a minimum response time for full accommodation.

Applicant’s Claim 19 corresponds to Applicant’s Claim 5, with respect to which the Examiner relied on the Vogelsang teaching that:

“[t]he optical action during stimulation may be modulated

either abruptly or continuously" (Vogelsang, Paragraph 45),
for his submission that the device of Vogelsang, though not explicitly stated, is in fact capable of changing the focus of the eye faster than the eye can achieve a full, fixed accommodation at a singular focal point.

In response to the Examiner's rejection of Claim 19, as with Claim 5, Applicant again notes that the complete sentence to which the Examiner makes reference states:

"The *optical action* during stimulation may be *modulated* either abruptly or continuously, which is achievable, for example, by changing the *distance, luminance* etc., of the fixation object, and/or by mounting *phase plates*." (Vogelsang, Paragraph 45; emphasis supplied).

Nowhere does Vogelsang define what is meant by either *optical action* or what is meant by *modulated*. However, the balance of the quoted sentence suggests that *modulated* refers to either

- changing a *distance* or
- changing a *luminance* or
- mounting *phase plates*.

There is nothing in this teaching to suggest or infer "a computer-controlled motorized carriage is moveable within a period of time substantially less than a minimum response time for full accommodation" as in Applicant's Claim 19. Other than a nonspecific reference to changing a distance, Vogelsang teaches away from Applicant's Claim 19.

The addition of Randle and Lemberg to Vogelsang does not overcome the insufficiency of Vogelsang's teaching, because, as repeatedly indicated, the combination of Randle and Lemberg with Vogelsang do not teach "[a]n accommodative stimulation device comprising," *inter alia*:

- a half-silvered mirror that projects an accommodative target at an eye and is disposed in plane that is at 45 degrees with both the visual axis of the eye and an axis of projection; and,
- an axis of projection that is substantially perpendicular to the visual axis of the eye.

Accordingly, the Examiner has not presented a convincing line of reasoning as to why one skilled in the art would have found the claimed invention to have been obvious in light of the teachings of these references. MPEP § 2142. Moreover, there is nothing in any of these references that would suggest or motivate their combination or sub-combination to invent an apparatus that acquires imaging information about an eye as the apparatus simultaneously stimulates the eye to undergo at least one reversible accommodative transition as *claimed* in the present application. The rejection of Claim 19 should be withdrawn and Claim 19 should be allowed.

CONCLUSION

In light of the foregoing discussion, Applicant submits Claims 1-19 are in condition for allowance under 35 U.S.C § 103(a). Applicant respectfully requests that the Examiner's

obviousness rejection of Claims 1-19 under 35 U.S.C. § 103(a) be withdrawn.

The teaching of Vogelsang is directed to “[a] device for measuring a dynamic behavior of an optical system, the device comprising: a stimulation unit; and an aberrometer.” [Vogelsang, Claim 24].

The teaching of Randle directed to a “device to train one to overcome empty field myopia and to provide therapy for behavioral myopia. [Randle: Column 2; Lines 67-68]

The teaching of Lemberg is directed to “devices, systems and methods which can provide measurements of the refractive error in the eye before, during and after vision correction surgery.” [Lemberg: Column 2; Lines 34-37].

The teaching of Nanjo is directed to providing an “apparatus for [statically] photographing a section of an anterior part of an eye.” [Nanjo: Column 2; Lines 17-18].

Applicant has shown that the combination or sub-combination of the foregoing references does *not* teach Applicant’s *whole invention*. In particular, the combination or any sub-combination of the foregoing references do not teach, *inter alia*, “[a]n apparatus comprising an accommodative stimulation device, an electromagnetic wave exposure device, and an imaging device, that further comprise and are structurally and functionally interactive with:

- a half-silvered mirror that projects an accommodative target at an eye and is disposed in plane that is at 45 degrees with both the visual axis of the eye and an axis of projection; and,
- an axis of projection that is substantially perpendicular to the visual axis of the eye.

There is nothing in any of these references that would suggest or motivate their combination or sub-combination to invent an apparatus that acquires imaging information about an eye as the apparatus simultaneously stimulates the eye to undergo at least one reversible accommodative transition as *claimed* in the present application.

In summary, based on the preceding arguments, Applicant respectfully submits that all of Applicant's Claims meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicant invites the Examiner to contact Applicant's representative at the telephone number listed below.

If any fees, including extension of time fees, are due as a result of this response, please charge Deposit Account No. 503033. In addition, please deduct any fees or credit any overpayments to deposit account 503033.

Respectfully submitted,


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